1901MNRAS..61..399H

was next observed. But on the 4th it was once more orange red. That night, however, was rather hazy.

		Est. Mag.			Est. Mag.
Feb.	28	1·6	March	25	5·2
March	1	2·2		27	3·9
	3	2·3		28	4·7
	6	2·8		30	4·3
	9	3·4 (?)		31	4·3
	10	3·3	April	1	4·7
	11	3·6 (?)		4	4·5
	16	3·8 (?)		8	4·7
	23	3·8		10	5·3
	24	4·1			

Highgate, N.: 1901 *April* 11.

Note on some Engraved Charts of Pogson's proposed Atlas of Variable Stars. By J. G. Hagen, S.J.

(*Communicated by the Secretaries.*)

In a former note in the *Monthly Notices* (1898, vol. lix., pp. 57–61) an account was given of Pogson's manuscripts, now preserved at the Harvard College Observatory, which comprise 134 catalogues and eighteen charts for as many variable or temporary stars. From these manuscript charts it was not clear whether they were meant as specimens for the engraver or as the final copies for reproduction. Since then Dr. R. Copeland informed me that the library of the Edinburgh Observatory possessed six engravings of charts which had been printed for Dr. Lee, of Hartwell House, where N. R. Pogson observed in 1859–60, and upon my request kindly forwarded them to me for examination.

The general aspect of these engravings is the same as that of the manuscript charts. They are of the same size, *viz.* about four inches in each dimension, not exactly square-shaped, but tapering, the meridians agreeing with conical projection and the parallels being straight lines. The co-ordinates are drawn at distances of 1^m and 10′ respectively. The variable on each chart lies a little outside the central cross, because the co-ordinates are absolute, not differential. The epoch of the projection is known to be 1860 from the manuscript catalogues. The inscriptions are in substance the same as in the manuscripts. The star images are rather large, and in many cases accompanied by numbers, whose

1901MNRAS..61..399H

meaning would be puzzling did we not know from another source that they are ten times the assumed magnitudes of the stars. The limit of these magnitudes was twelve in the earlier manuscripts, and thirteen in the later ones.

The upper inscriptions of these six engravings are as follows :—

(1)	*Gemini,*	Var. 2,	now known as	2528	*R Geminorum.*
(2)	*Cassiopeia,*	„ 2,	„	8600	*R Cassiopeiæ.*
(3)	*Ursa Major,*	„ 1,	„	3825	*R Ursæ Majoris.*
(4)	„ „	„ 2,	„	4557	*S* „ „
(5)	*Libra*	„ 1,	„	5688	*R Libræ.*
(6)	*Cygnus*	„ 3,	„	7045	*R Cygni.*

Each chart bears below the marks :

N. R. Pogson, Del. J. Basire, Sc.

The readers of this note will be interested to learn that three of these charts (Nos. 3, 4, 6) have actually been published, although not recognised as Pogson's charts. They are found in the volume lately issued under the title "Observations of Twenty-three Variable Stars," by the late George Knott, London, 1899 (*Mem. R.A.S.*, vol. lii.), on pages 150, 162, 204. These charts were probably Mr. Knott's own diagrams * and are perfect copies of Pogson's charts, with the exception of the appended notes. From Professor Turner's editorial notes we learn the meaning of those numbers, which might otherwise be taken as catalogue numbers—they are ten times the assumed magnitudes of the stars.

The same three charts, Nos. 3, 4, 6, and also No. 1, allow a comparison with the "Atlas Stellarum Variabilium," in which these same variables occur. The main difference will be found in the area of faintest stars, both as regards extension and density. This area is on Pogson's charts 80′ square, or seven times as large as in the atlas, and only half as dense. If we compare the areas of faint stars which are common to both kinds of charts, namely 30′ square, we find that

for *R Geminorum,*	out of	41	stars in the atlas,	Pogson	has	22.
R Ursæ Maj.	„	23	„	„	„	11.
S „ „	„	11	„	„	„	8.
R Cygni	„	40	„	„	„	22.

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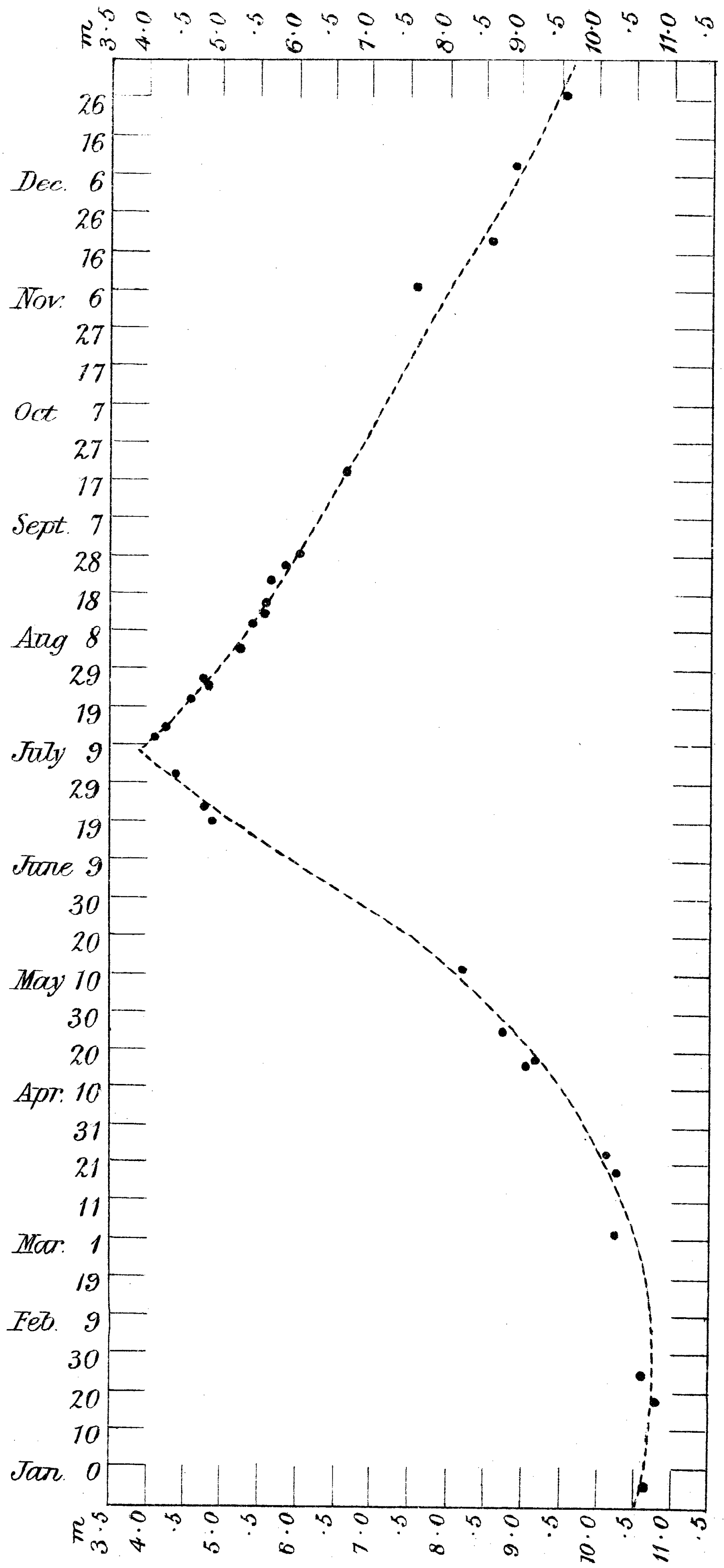
* The charts 3, 4, 6 in "Observations of Twenty-three Variable Stars" were copied from Pogson's charts, impressions of which had been pasted by Mr. Knott in his ledgers of Variable Stars, now in the Library of the Royal Astronomical Society.—H. H. Turner.

1901MNRAS..61..399H



Light Curve of R Horologii during 1900.

1901MNRAS..61..399H

In the latter case, however, there are two of the twenty-two of Pogson's stars which are missing in the atlas. The comparison would be quite different for Series IV. (in which *R Cassiopeiæ* occurs) and Series V. of the atlas, which are adapted to variables of brighter minima. It was unfortunate in Pogson's plan of work that it comprehended an area as large as 80′ square for the faintest stars, and that it was applied indiscriminately to variables of bright and faint minima. As a reward for his untiring labour Mr. Pogson had deserved to see his work in print and bear fruit in the hands of others. It is to be hoped that this work may see the light yet in some shape and become useful to the science of variable stars.

Georgetown College Observatory:
1901 *March* 19.

Variation of R Horologii during 1900.

By Alex. W. Roberts, D.Sc.

The variation of this long-period variable during 1900 is so remarkable as to call for special notice.

As a rule the star at a maximum is slightly brighter than the 6th mag., but last year it reached the 4th mag. at its maximum phase.

In the accompanying plate (plate 11) is given the full light curve of the star as obtained from the observations made during 1900. The full period of the star is 408 days, but the portion of the curve on the plate demonstrates sufficiently the form of the light curve.

It will be seen from this curve that the light changes extend over seven magnitudes. This means that at its max. on 1900 July 10 *R Horologii* was at least 650 times brighter than it was at its minimum on 1900 February 2. It would be an advance of more than ordinary importance if we could determine how much hotter *R Horologii* was on 1900 July 10 as compared with 1900 February 2.

Indeed, one is convinced that the secret of long-period variation will be kept until some discovery is made which will enable us to deal with heat rays as we do with light rays.

Lovedale: 1901 *March* 13.